

## Energy Efficiency Manager Program, Jordan

### Themes

- ★ Energy efficiency
- ❖ Technical capacity development
- ❖ Institutional capacity development
- ❖ Policy and legislation

### PROJECT DATA

**Name:** Energy Efficiency Manager Program  
**Implementing Organization:** National Energy Research Center (NGO)  
**Location:** Jordan  
**SGP contribution:** \$37,150 (July 2000) and \$12,850 (February 2003)  
**Start Date:** July 2000

### ENERGY OVERVIEW

**Energy Resource:** fossil fuels  
**Technology:** equipment and techniques for energy efficiency  
**Application:** industrial production  
**Sector:** small and medium-sized businesses  
**Number of People Served:** 50 young engineers trained

### BACKGROUND

Since Jordan is almost fully dependent upon imported oil, there are political as well as environmental benefits to improving the efficiency of energy use. However, these skills and technologies have not been sufficiently supported or emphasized in order to make this a reality on any large scale.

### PROJECT DESCRIPTION

#### Overview

This project builds skills, technology access and institutional commitments for improving energy efficiency in small to medium-sized industries in Jordan. It achieves this by training young engineers in energy efficient technologies and techniques, and then helping them find employment within the industrial sector where they can use these skills.

#### Implementation

The first grant to the National Energy Research Center (NERC) supported a training course for an initial set of 50 engineers. These young engineers were trained in energy efficient technologies and techniques that could be used in specific types of industrial facilities. NERC then assisted the engineers in finding jobs. It also organized an exhibition of energy efficient equipment from international suppliers in order to introduce this sort of equipment in Jordan. NERC has raised awareness in the industrial sector about the benefits of energy efficiency, and has built partnerships with specific industries that later employed the trained engineers in positions specifically designated for energy efficiency experts. Following the completion of this project, a second SGP grant to NERC helped support

the training of a second group of young engineers, as well as promotion of an energy conservation law that would require industries to appoint an energy conservation specialist for any establishment whose budget exceeds a certain amount. A panel of experts would help decide what facilities would fall under this law. NERC also continues to raise awareness in the industrial sector about the benefits of energy conservation.

#### Technologies

The engineers have been trained in a variety of energy efficient technologies and techniques. Twelve "case studies" have been prepared of energy efficiency improvements and designs for technologies such as electrical systems, motors, lighting systems, heat recovery systems, and air conditioning.

#### Environmental Benefits

**Global:** Since most industries are dependent upon oil and other fossil fuels, any efficiency improvements lead to reductions in greenhouse gas emissions. NERC has estimated that this project could save 28,000 tons of carbon dioxide emissions. This figure was calculated based on numbers obtained from some 40 industries that had preliminary studies conducted at their plants by NERC analyzing energy saved and converting that into estimated carbon dioxide emissions.

**Local:** Improving the efficiency of energy use by industries may very well result in local air quality and environmental improvements.

#### Local Benefits

**Employment:** This project provides employment to young engineers in small to medium-scale industries. If the legislation that is being proposed under the second grant is successful, then this employment aspect may be further expanded since all industries of a certain size would be required to employ an energy efficiency specialist.

#### National Benefits

The national benefit of this project could be significant, assuming the project's efforts to introduce new energy efficient technologies in Jordan are successful. Access to these technologies, combined with a new set of young engineers who are skilled at implementing them, will be a national benefit since this could reduce the nation's dependence upon imported oil.

#### Beneficiaries

This project benefits young engineers, who receive employment, and small to medium-sized industries, who can save money on their energy bills by implementing energy saving techniques and technologies.

#### Capacity Development

This project is centered around capacity building activities. The initial set of 50 engineers has received intensive training to prepare them for jobs in energy efficiency. In addition, NERC has designed ongoing week-long training programs in energy efficiency that occur on a regular basis.

## Arab States: Jordan

### Partners

NERC, the grantee, has partnered with a range of businesses and business organizations.

**Small to medium-scale businesses:** These businesses provide employment to graduates of the training program, allowing them to implement their new skills in energy efficiency.

**Chamber of Industry:** This organization representing industry has co-sponsored the training sessions.

**Jordan Engineering Association:** NERC has worked with this organization to find candidates for participation in the training and employment program.

**Policy-makers:** Through dialogue with policy-makers NERC has been developing legislation that would help promote energy efficiency in industry.

## LESSONS LEARNED

### Environmental Management

This project demonstrates a particular approach to achieving energy efficiency improvements in industry, one that is based on training and capacity building for young engineers in energy efficient technologies, together with support for policy changes that would guarantee them a role in the industrial sector.

### Barrier Removal

**Knowledge/information access:** This project has primarily focused on building up awareness about the benefits of energy efficiency, and on building up the knowledge of individual young engineers in implementing energy efficient technologies and techniques. The project has used an exhibition of international technologies to help educate local firms about technological possibilities, and trained technicians to ensure that the capacity is there to implement energy efficient approaches. NERC publishes an annual Directory which contains a listing of all suppliers of Renewable Energy and Energy & Water Conservation Equipments and Retrofits, as well as a quarterly newsletter that covers a vast spectrum of subjects relating to energy efficiency. The newsletter and directory are distributed free to approximately 1200 industries, hotels, hospitals, and all relevant private and governmental institutions. However, this project's evaluation revealed a need for stronger outreach, and the most recent grant is designed to address this.

**Policy:** This project has promoted a piece of energy conservation legislation that would help institutionalize the use energy conservation techniques and technologies. The legislation would require industries of a certain size to employ an energy

conservation specialist. It is not known how likely it is that this legislation is passed. Of course, if energy-saving techniques already save industries money on their energy bill, it would be in their interest to take these steps anyway. If they are not, it is not clear that a lack of legislation is the problem; there may be a lack of awareness, or insufficient capital to invest in the technology. The project appears to be undertaking efforts to reduce information and knowledge barriers, but perhaps if this is not sufficient then perhaps financial barriers should be explored along with the policy barriers. In general, a careful diagnosis of the barriers is essential in order to promote policy that will actually make a difference. The solutions may be different for different industries.

**Institutional:** By encouraging industries to establish paid positions focused on energy efficiency, the project has encouraged a change in the institutional structure that can pave the way for energy improvements. This is different from encouraging industries to adopt a particular energy-saving technology or technique, and may yield greater long-term results, if these positions for energy conservation engineers are taken seriously by industries.

### Scaling Up

NERC has leveraged contributions from some major national institutions to support its trainings, such as from the Chamber of Industry and the Jordan Engineering Association. If these institutions see positive results from those who have already been trained and placed in jobs, they may continue to invest in training young engineers in energy efficiency. NERC is also supporting the new energy conservation policy requiring each establishment of a certain size to employ an energy efficiency expert. However, as mentioned above, outreach about the savings may be the most important way to scale up, since it should be in the interest of industries to make at least some investment in energy conservation. In addition, studies may be necessary to understand the barriers to energy efficiency within particular industries.

## SOURCES CONSULTED

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- SGP Jordan. Ten Years of Partnership with Local Communities: Lessons in Sustainable Development. Amman, August 2002, p. 13.
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- Walid Shahin, National Energy Research Center, email communication, October 2003.